

Translation

PATENT COOPERATION TREATY
PCT

PCT Application
PCT/CN2005/000226



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

FOR FURTHER ACTION

See Form PCT/IPEA/416

Applicant's or agent's file reference
050967Z1 PC

International application No.
PCT/CN2005/000226

International filing date (day/month/year)
25.Feb.2005 (25.02.2005)

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24.Mar.2004 (24.03.2004)

International Patent Classification (IPC) or national classification and IPC
See Supplemental Box

Applicant

OCEAN UNIVERSITY OF CHINA et al

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:

- a. ☒ (sent to the applicant and to the International Bureau) a total of 2 sheets, as follows:
 - ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☒ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic sheets, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions)).

4. This report contains indications relating to the following items:

- ☒ Box No. I Basis of the report
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

Date of submission of the demand
27.Oct.2005 (27.10.2005)

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Date of completion of this report
12.Jul.2006 (12.07.2006)

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Form PCT/IPEA/409 (cover sheet) (April 2005)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/CN2005/000226

Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-15 _____ as originally filed/furnished
- pages * _____ received by this Authority on _____
- pages * _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages * _____ as amended (together with any statement) under Article 19
- pages 16-17 _____ received by this Authority on 03.Jul.2006 (03.07.2006)
- pages * _____ received by this Authority on _____
- ☒ the drawings:
- pages 1-9 _____ as originally filed/furnished
- pages * _____ received by this Authority on _____
- pages * _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☒ the claims, Nos. 4-7 _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement:

Novelty (N)	Claims 1-3,8-10	YES
	Claims	NO
Inventive step (IS)	Claims 1-3,8-10	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-10	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

D1: CN 1401786 A , 12.Mar.2003 (12.03.2003) description page 1

D2: CN 1341665 A, 27.Mar.2002 (27.03.2002) description page 2

D3: CN1414002 A,30.Apr.2003 (30.04.2003) description

D4: CN 1473836 A,11.Feb.2004 (11.02.2004) see the whole document

D4 discloses a sort of guluronic acid oligosaccharides , wherein the reduced terminal in position-1 is carboxyl radical . Although the structure thereof is similar with the formular II of the invention , the effect between them is different , therefore , the skilled in the art do not develop the formular II of the invention according to the D4 , it seems that the novelty and the inventive step could be acknowledged for the subject matter of claim 1-3,9,10 in sense of Article 33(3) PCT .

D1 discloses β -D-mannuronic acid oligosaccharides having mean molecular weight of 2000(HSH-971); D2 discloses a sort of mannuronic acid having polymerized degree of 2-12; D3 discloses mannuronic acid oligosaccharides comprising of six saccharides . These documents do not disclose nor teach the subject of claims 8 , therefore , it seems that the the novelty and inventive step could be acknowledged for the subject matter of claim 8 in sense of Article 33(2) , (3) PCT .

Claims 1-10 meet the criteria set out in PCT Article 33(4), they have industrial applicability beacause the subject matter claimed can be used in industry .

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The example of the invention only discloses the mannuronic acid oligosaccharides manufactured by mannuronic acid polysaccharides, but the method of claims 4-7 begin with alginate. Those skilled in the art well know that algin comprise mannuronic acid and guluronic acid, the skilled could not acknowledge that alginate can produce mannuronic acid oligosaccharides made of mannuronic acid only, claims 4-7 are not fully supported by the description, they do not meet Article 6 PCT .

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

International Patent Classification (IPC) or national classification and IPC

A61K31/702 (2006.01) i

C08B37/00 (2006.01) i

C07H3/06 (2006.01) i

A61P25/28 (2006.01) i

A61P3/10 (2006.01) I

Some amendments in claims beyond the disclosure as filed :

The steps in claim 4 are different from those disclosed in the initial application and cannot be directly or undoubtedly deduced from the initial disclosure , therefore , such amendments beyond the intial disclosure , because :

The steps for producing formular II disclosed in the initial disclosure as followed : addition the oxidant to the solution of algin oligosaccharides , wherein , the solution of algin oligosaccharides is produced by hydrolysis and adjusting the pH value , however , the steps in claim 4 add the procedure for adjusting the pH value after the oxidized step , therefore , such amendments beyond the intial disclosure .